UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
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June 30, 2009

Ms. Suzanne B. Herron, P.E., CPESC
Director
Environmental Division
Tennessee Department of Transportation
505 Deaderick Street, Suite 900
Nashville, TN 37243

SUBJECT: Interstate 55 Interchange at E.H. Crump Boulevard and South Riverside Boulevard

Dear Ms. Herron,

The U.S. Environmental Protection Agency (EPA) has reviewed the referenced Draft Environmental Impact Statement (EIS) in accordance with its responsibilities under Section 309 of the Clean Air Act and Section 102(2)(C) of the National Environmental Policy Act (NEPA). The U.S. Department of Transportation, Federal Highway Administration and Tennessee Department of Transportation propose to improve the I-55 Interchange at E.H. Crump Boulevard (State Route 15/U.S. 64) and South Riverside Boulevard within the western edge of the City of Memphis in Shelby County, Tennessee. The existing I-55 interchange is a full cloverleaf design with loop ramps in all four quadrants. The proposed project would involve reconfiguring the cloverleaf design of the existing I-55 interchange into a configuration that reduces crashes, relieves congestion and provides route continuity of I-55 by eliminating the need for mainline I-55 traffic to utilize single-lane, low–speed ramps.

The alternatives considered include one No Build Alternative and Two Build Alternatives (A and B). The No-Build Alternative includes minor changes such as safety enhancements and routine maintenance to the existing interchange. No substantial changes to the interchange would be conducted under this alternative. The Build Alternative A consists of modifications to the I-55 Interchange that would improve traffic movements along and between the I-55 and McLemore Interchange and the Mississippi River Bridge. Build Alternative A would require the construction of three new structures, construction of substantial retaining walls, relocation of approximately eight residences and two businesses, and elimination of the existing ramps to the nearby Metal Museum. Build Alternative B is a similar design as Alternative A, but incorporates modifications so that Southbound I-55 motorists would be provided continuous access to E.H. Crump Boulevard by including an outside auxiliary road that would cross under the four-lane structure. Unlike Alternative A, Alternative B doesn't provide direct access to the residential and commercial properties on Illinois Avenue from I-55. The Alternative B design would require relocation of nine residences and one business. Unlike Alternative A, Alternative B maintains the continuity of E.H. Crump Boulevard by eliminating two at-grade intersections and

provides more direct access to E.H. Crump Boulevard and South Riverside Boulevard. An overall preferred alternative was not identified in the DEIS.

Based on our review of the Draft EIS, EPA's environmental concerns are related to noise impacts, relocation impacts to low-income and minority communities and lack of analysis for mobile source air toxics (MSATs).

EPA is concerned about noise impacts and possible abatement measures for the French Fort neighborhood, which is an Environmental Justice community. TDOT did noise abatement analysis and compared Buffer Zones and Noise Barriers. TDOT found the Buffer Zones to be cost prohibitive because of the costs of Right of Way (ROW), but didn't provide any cost data to substantiate this claim. TDOT did conclude that Noise Barriers met TDOT's cost-effectiveness criteria, but again did not provide data comparing the two abatement measures. We recommend that TDOT consult the French Fort community on the preference of noise abatement measures. Additionally, FHWA noise regulations under 23 CFR 772.11(f) requires the "the views of the impacted residents will be a major consideration in reaching a decision on the reasonableness of abatement measures to be provided." The views of the impacted community of French Fort were not adequately expressed in the DEIS, and EPA is concerned that TDOT hasn't properly consulted with this Environmental Justice community.

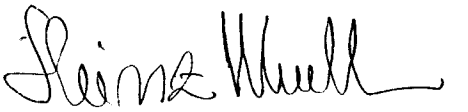
Eight residences of French Fort and 1-2 businesses (depending on the build alternative) will be relocated. In the DEIS, there is a discussion regarding the relocation options offered to the French Fort residences. TDOT states that the residences have agreed to this option, but there is no documentation to substantiate this. Any outreach measures to the French Fort residences and Memphis community should be included in the FEIS. EPA would like a reasonable level of comfort that the French Fort residences are satisfied with the relocation options offered by TDOT.

The discussion of MSATs in the Draft EIS and in the air quality technical report presents information that does not coincide with the opinions of many air quality professionals, academics, and the editorial boards of scholarly journals. Air toxics impacts for a project of this magnitude should be evaluated based on emissions, dispersion modeling, and screening level risk assessment in locations where people work and reside. The evaluation should include a detailed discussion of the evidence concerning near-roadway health impacts and the potential for such impacts during and following completion of this project. Our specific recommendations include: 1) comparison of alternatives regarding potential impacts related to MSATs, 2) quantifying the construction and operational emissions for MSATs, 3) determining dispersion, emissions and exposure levels of the most significant MSATs, and 4) identifying appropriate avoidance, minimization, and/or mitigation opportunities.

We rate this document EC-2 (Environmental Concerns-with more information requested). Enclosed is a summary of definitions for EPA ratings. Also enclosed are specific review comments which provide greater detail regarding the environmental concerns, additional information requested, and EPA recommendations to address these concerns.

We appreciate the opportunity to review the proposed action. Please contact Jamie Higgins at (404) 562-9681 if you want to discuss our comments.

Sincerely,



Heinz J. Mueller, Chief
NEPA Program Office
Office of Policy and Management

Enclosures

cc: Tom Love – Tennessee Department of Transportation

U.S. ENVIRONMENTAL PROTECTION AGENCY
ENVIRONMENTAL IMPACT STATEMENT (EIS) RATING SYSTEM CRITERIA

EPA has developed a set of criteria for rating Draft EISs. The rating system provides a basis upon which EPA makes recommendations to the lead agency for improving the draft.

RATING THE ENVIRONMENTAL IMPACT OF THE ACTION

$ LO (Lack of Objections): The review has not identified any potential environmental impacts requiring substantive changes to the preferred alternative. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposed action.

$ EC (Environmental Concerns): The review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact.

$ EO (Environmental Objections): The review has identified significant environmental impacts that should be avoided in order to adequately protect the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). The basis for environmental objections can include situations:

1. Where an action might violate or be inconsistent with achievement or maintenance of a national environmental standard;
2. Where the Federal agency violates its own substantive environmental requirements that relate to EPA's areas of jurisdiction or expertise;
3. Where there is a violation of an EPA policy declaration;
4. Where there are no applicable standards or where applicable standards will not be violated but there is potential for significant environmental degradation that could be corrected by project modification or other feasible alternatives; or
5. Where proceeding with the proposed action would set a precedent for future actions that collectively could result in significant environmental impacts.

$ EU (Environmentally Unsatisfactory): The review has identified adverse environmental impacts that are of sufficient magnitude that EPA believes the proposed action must not proceed as proposed. The basis for an environmentally unsatisfactory determination consists of identification of environmentally objectionable impacts as defined above and one or more of the following conditions:

1. The potential violation of or inconsistency with a national environmental standard is substantive and/or will occur on a long-term basis;
2. There are no applicable standards but the severity, duration, or geographical scope of the impacts associated with the proposed action warrant special attention; or
3. The potential environmental impacts resulting from the proposed action are of national importance because of the threat to national environmental resources or to environmental policies.

RATING THE ADEQUACY OF THE ENVIRONMENTAL IMPACT STATEMENT (EIS)

$ 1 (Adequate): The Draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

$ 2 (Insufficient Information): The Draft EIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the Draft EIS, which could reduce the environmental impacts of the proposal. The identified additional information, data, analyses, or discussion should be included in the Final EIS.

$ 3 (Inadequate): The Draft EIS does not adequately assess the potentially significant environmental impacts of the proposal, or the reviewer has identified new, reasonably available, alternatives, that are outside of the spectrum of alternatives analyzed in the Draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. The identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. This rating indicates EPA's belief that the Draft EIS does not meet the purposes of NEPA and/or the Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised Draft EIS.

Interstate 55 Interchange at E.H. Crump Boulevard and South Riverside Boulevard
At South Riverside Boulevard in Memphis, Shelby County, Tennessee

U.S. Environmental Protection Agency—Comments

Social and Environmental Justice Impacts:

1. In the Social Environment Impacts of Alternative B Mitigation Section (3.5.5, page 59), there is a discussion regarding TDOT's Civil Rights Staff reviewing the DEIS for Environmental Justice issues. EPA recommends that TDOT's Civil Rights Staff feedback be included and incorporated within the FEIS. Additionally, there is a discussion that the French Fort neighborhood has agreed upon a displacement option, but there is no documentation that all potentially displaced residences have agreed to this option. For example, there are no letters of support from a French Fort community organization or neighborhood association that would substantiate this claim. EPA is concerned that residents of the French Fort neighborhood have not been consulted with adequately. EPA recommends that TDOT continue outreach activities to the French Fort community and document these activities and the French Fort community reaction to re-location.

2. In the Business Displacements Section (3.6.1.2, page 60), there is a discussion regarding the possible business displacements, but there is no discussion as to the reaction from these displaced business. The Cotton Ginners Association and the Mississippi River RV Park provided comments and their preferences of alternatives in letters located in Appendix A, but there is no discussion in the DEIS regarding their feedback. EPA recommends the FEIS clearly articulate their concerns and alternative preference and explain any mitigation solutions that might lessen their impacts.

3. In Section 3.6.2.1 (Other Relocation Options Identified for Displaced Residents), there is a discussion regarding the impacts to displaced residents of the French Fort neighborhood. As previously noted in Comment 1 (above), there is no feedback regarding the disposition of the French Fort community residences to the displacement. Are all potentially displaced residents satisfied with the options provided by TDOT? EPA recommends that TDOT discuss the feedback from displaced residences and the numbers of residences that agree or disagree with TDOT's proposal. There is mention that TDOT will, "continue to follow the Uniform Relocation Assistance and Real Property Acquisition Act guidelines to ensure that all displacees are adequately relocated and/or compensated". Has the potential displaced residents been educated on this process and given estimates of relocation compensations? EPA request that the FEIS provide documentation that potentially displaced residents have been educated on the relocation process and understand the compensation procedures.

4. There is no mention of the impacts (Direct, Indirect or Cumulative) to relocations of displaced businesses. There is also no discussion of mitigation activities associated with displacing these businesses. EPA recommends that the FEIS include alternatives relocation impacts associated with displaced businesses and a section discussing mitigation activities associated with displaced businesses.

5. In the Potential Economic Impacts of Alternative (Direct Impacts, 3.7.3.1, page 69), there is a discussion regarding the potential loss of jobs from businesses not wanting to relocate, but there is no approximate numbers of employees that might lose their jobs. EPA recommends that in the FEIS TDOT better determine the approximate loss of jobs of each alternative and discuss the economic impacts of these job losses.

Climate Change:
On page 81, 3.9.1.6 is labeled as "Global Warming", but "Climate Change" is a more accurate term.

Noise Impacts:

1. Table 3.15 is very confusing and isn't well described in 3.10.1.4 (page 87). It isn't apparent as to the meaning of the "X"s or how the "Change vs. Existing" column was determined. EPA recommends that the FEIS better describe Table 3.15 so that the public can better understand the table's findings. Additionally, in 3.10.1.5, Noise Abatement section there is a discussion regarding the feasibility of noise abatement. EPA recommends that Table 3.15 be expanded to show the mitigated effects of building these noise barriers and other mitigated measures. One column could show the modeled dBA after construction of the noise barriers, which would give the public a better understanding of the effectiveness of the noise barriers and would better illustrate the mitigated impacts.

2. There is a discussion regarding Buffer Zones as an abatement measure in Section 3.10.1.5 and there is a statement that "buffer zones would require the elimination of many of the sensitive receptors, as well as greatly increasing the ROW costs." It appears that TDOT has eliminated the use of buffer zones as a noise abatement measure because of the cost, but the DEIS doesn't state the approximate cost of buffer zones. EPA recommends that TDOT compare the cost of noise barriers to the buffer zone as an abatement measure. Additionally, EPA encourages TDOT to further analyze the use of buffer zones and better describe the cost differences between buffer zones and noise barriers in the FEIS. What is the feedback from the French Fort community regarding this data? EPA is concerned that the French Fort community hasn't been properly educated on the noise impacts and the differences between noise barriers and buffer zones. The FEIS should better explain the French Fort's reaction to the proposed noise abatement measures.

3. Given that the French Fort neighborhood is an Environmental Justice community, TDOT should take proper measures to assure that their concerns have been satisfactorily met. EPA would like a reasonable amount of certainty that the French Fort neighborhood is satisfied with the proposed relocation plan and noise abatement measures.

Hazardous Waste:
On page 111 (3.17.1.2), there is a discussion regarding a hazardous waste field survey; however, there are no details regarding who conducted the field survey or the date of the field survey. Is this field survey included within the aforementioned Technical Report? Is this field survey available to the public? EPA recommends that the field survey be made available to the public.

Air Impacts:

1. Page ES-8, the Executive Summary states:

> "The additional travel lanes and proposed realignment contemplated as part of the Build Alternatives will have the effect of moving some traffic closer to nearby homes and businesses; therefore, there may be localized areas where ambient concentrations of MSATs could be higher than the No-Build Alternative. The emissions increase would be offset somewhat by lower MSAT emission rates due to increased speeds, because according to EPA's MOBILE6 emissions model, emissions of all of the priority MSATs except for diesel particulate matter decrease as speed increases. The extent to which these speed-related emissions decreases will offset VMT-related emissions increases cannot be reliably projected due to the inherent deficiencies of technical models."

The assertion of the FHWA in NEPA documents that available tools and information are not adequate for use in NEPA analyses has been a point of disagreement between FHWA and EPA for some time. In the comments below, we offer information in order to reassure the FHWA that it is technically possible to carry out the analyses necessary to compare alternatives at the local project level. It should be understood that EPA believes that alternatives being considered under the NEPA process can and should be properly compared using their potential impacts related to MSATs as one of the measures for comparison.

2. Continued on Page ES-8, the Executive Summary states:

> "Regardless of the alternative chosen for this project, emissions will likely be lower than present levels in the design year as a result of EPA's national control programs that are projected to reduce MSAT emissions by 57 to 87 percent between 2000 and 2020. ... the magnitude of the EPA-projected reductions is so great (even after accounting for VMT growth) that MSAT emissions in the project area are likely to be lower in the future in nearly all cases."

This information does not inform the decision among options since one of the EIS's purposes is to compare the impacts of those options at some point in the future, not to evaluate the impact of the EPA regulations between today and some point in the future.

3. On Page ES-9, the Executive Summary states, "No violations of the NAAQS are projected for this project. Therefore no air quality mitigation measures are required for the project improvements."

Another purpose of the EIS is to consider approaches to reduce the impact of the project on a variety of metrics. While there may be no projected violations of the NAAQS associated with this project, the EIS should nonetheless consider approaches to reduce the impact associated with the project. During construction and for the final project design, we recommend every effort should be made to avoid air quality impacts by using "best practices", for example:

a. A ban on open burning – all materials that would normally be burned should be recycled to the extent feasible to avoid health and visibility impacts.

b. Minimizing dust and debris generated during construction.
c. Construction limited to the smallest footprint feasible to avoid environmental degradation and reduce the amount of dust generated during construction.
d. Maintenance of the maximum amount of trees feasible within the project right-of-way during construction to reduce footprint, noise and dust dispersion during construction.
e. Installation of the latest air pollution control devices on all construction equipment (see EPA's Verified Technologies List for diesel engines at http://www.epa.gov/otaq/retrofit/verif-list.htm).
f. Use of ultra low sulfur fuel exclusively for construction equipment.
g. Restriction on the time that engines involved in construction may be left to idle.

4. On Page 76, Section 3.9.1.5 Mobile Source Air Toxics, second full paragraph mentions priority MSATs. The DEIS should acknowledge and cite the new Mobile Source Air Toxics (MSAT) rule, and remove references to 21 total and 6 "priority" MSATs. This information is outdated as of the final MSAT rule, published February 26, 2007. The rule identifies air toxics emitted by mobile sources, though no formal "MSAT list" exists. The rule does identify MSATs that are risk drivers in the 1999 National Air Toxics Assessment and of which mobile sources are significant sources. This list includes benzene, 1,3-butadiene, acrolein, diesel particulate matter, naphthalene, formaldehyde, and polycyclic organic matter (POM), but is not a "priority" list of MSATs. Refer to Chapter 1 of the MSAT rule RIA for detail.

5. On Page 76, The 4th full paragraph says:

> "Despite national trend information on MSATs, reductions, many questions remain unanswered about the overall health risk of these air toxics. In particular, the tools and techniques for assessing project-specific health impacts from MSATs are limited."

While it is correct that these tools do not predict health impacts, they do allow a comparison of potential impacts among alternatives. The thrust of the text is at variance with the common practice of air quality and environmental health professionals, as reflected in the body of peer-reviewed literature employing these various models. In particular, the National Cooperative Highway Research Program (NCHRP) report referenced below (now final) represents the views of air quality modeling and risk assessment experts, and reaches conclusions vastly divergent from those in this and the following pages.[1]

6. On Page 77, the DEIS lists three categories of information that it says are encumbered by technical shortcomings or uncertain science that prevent a more complete determination of the MSAT health impacts of the project – emissions, dispersion, and exposure levels and health effects. EPA disagrees with FHWA and TDOT's assertion that "available technical tools do not provide the ability to predict project-specific health impacts of the emission changes associated

[1] Carr, E.L.; Ernst, D.A.; Rosenbaum, A.; Glass, G.; Hartley, S. (2007) Analyzing, documenting, and communicating the impacts of mobile source air toxic emissions in the NEPA process. Report under NCHRP project 25-25. Note that the authors from ICF International have developed air quality models employed by EPA, and include past presidents of professional environmental health societies (Arlene Rosenbaum is past president of the International Society for Exposure Analysis).

with the alternatives carried forward..." EPA recommends that FHWA and TDOT further analyze the MSAT health impacts as outlined below.

a. The "Emissions" section says that MOBILE6.2 has limited applicability at the project level,

> "... is a trip-based model—emission factors are projected based on a typical trip of 7.5 miles, and on average speeds for this typical trip. This means that MOBILE6.2 does not have the ability to predict emission factors for a specific vehicle operating condition at a specific location at a specific time. Because of this limitation, MOBILE6.2 can only approximate the operating speeds and levels of congestion likely to be present on the largest-scale projects, and cannot adequately capture emissions effects of smaller projects."

This description of MOBILE6.2 is incorrect. According to EPA's "Technical Guidance on the Use of MOBILE6.2 for Emission Inventory Preparation," *"MOBILE6.2 has an 'AVERAGE SPEED' command which is intended specifically to assist users in modeling individual roadway links."* This statement also contradicts the opinion of emission modeling experts (Bai et al., 2007, Atmos Environ): *"Note that a consistent link level interface* [with activity from travel models] *can be attained if trip-based emission factors are converted to link based specifications. The latest MOBILE model (MOBILE6.2) reflects such a conversion for its previous versions, which now specifies emission factors for different facility types."*[2]

The section continues, "Also the emission rates used in MOBILE6.2 for both particulate matter and MSATs are based on a limited number of tests of mostly older-technology vehicles." While the data obtained on the fractions of total organic gas (TOG) comprised by individual toxics were collected in the early 1990s, there is no *a priori* basis for asserting that these toxic fractions are not applicable to current vehicles. MOBILE6.2's emission factors for VOCs, CO, and NOx are based upon extensive testing of recent model year vehicles. One study from Connecticut that evaluated the performance of the toxic ratios within MOBILE6.2 using ambient data concluded that modeled and monitored data "were in good agreement."[3]

b. The "Dispersion" section says,

> "The performance of dispersion models is more accurate for predicting maximum concentrations that can occur at some time at some location within a geographic area. This limitation makes it difficult to predict accurate exposure patterns at specific times at specific highway project locations across an urban area to assess potential health risk."

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[2] Bai, S.; Chiu, Y-C.; Niemeier, D.A. (In press) A comparative analysis of using trip-based versus link-based traffic data fro regional mobile source emissions estimation. Atmospheric Environment. [Online at http://dx.doi.org. doi:10.1016/j.atmosenv.2007.05.051]

[3] Nadim, F.; Iranmahboob, J.; Holmen, B.; Hoag, G.E.; Perkins, C.; Dahmani, A.M. (2003) Application of computer models to assess the effects of emission-reduction programs for a sustainable urban air quality management. Conference paper. Application of Technology in Urban Development, Iranian Academic Association. December 21-28, 2003.

There are numerous applications of dispersion models for this specific purpose in scholarly journals. The "Dispersion" section concludes,

> "Along with these general limitations of dispersion models, FHWA is also faced with a lack of monitoring data in most areas for use in establishing project-specific MSAT background concentrations."

The purpose of modeling is not to compare current ambient concentrations with future modeled concentrations associated with each of the alternatives. Rather, it is to compare the different alternatives with one another. Hence it is not necessary to have current background concentrations in order to compare the alternatives.

c. The "Exposure Levels and Health Effects" section states,

> "Finally, even if emission levels and concentrations of MSATs could be accurately predicted, shortcomings in current techniques for exposure assessment and risk analysis preclude us from reaching meaningful conclusions about project-specific health impacts."

The risk assessment process was not designed to quantify actual health risk in a community. Rather, screening level risk assessments can be used to compare potential air toxics related impacts as one consideration in evaluating various alternatives. EPA published the Air Toxics Reference Library in order to assist in the screening evaluation of air toxics exposures for health impacts. We suggest FHWA use the tiered approach described in this document to compare alternatives being considered for the I-55 Interchange. That library is available at http://www.epa.gov/ttn/fera/risk_atra_main.html. The library includes a tabulation of toxicity values for many air toxics. That table is available at http://www.epa.gov/ttn/atw/toxsource/summary.html.

The "Exposure Levels and Health Effects" section goes on to say,

> "Exposure assessments are difficult because it is difficult to accurately calculate annual concentrations of MSATs near roadways, and to determine the portion of a year that people are actually exposed to those concentrations at a specific location. These difficulties are magnified for 70-year cancer assessments, particularly because unsupportable assumptions would have to be made regarding changes in travel patterns and vehicle technology (which affects emissions rates) over a 70-year period."

Refinements in modeling technology have significantly improved the ability to handle non-sedentary mobility during the life of a given population. The National-scale Air Toxics Assessment (NATA: http://www.epa.gov/ttn/atw/nata/index.html) is one example of this extensively robust approach towards achieving a finer measure of exposure that reflects more life activities. The 70-year averaging time for carcinogenesis reflects the potential onset of an excess cancer that might result from exposure to a carcinogen under

a given exposure scenario. Adjustments to reflect travel patterns and vehicle technology might provide useful information in predicting a central tendency exposure outcome. However, it would be unclear whether, and if so, how the result would improve the accuracy/protectiveness of the resulting risk characterization relative to a given population over a lifetime.

> In a screening level evaluation, as noted in the Air Toxics Risk Assessment Reference Library (Volume 1) simplifying assumptions are used to save time and costs associated with the effort. In the interest of not overlooking a potential issue, the assumptions are conservative, for example, assuming that the person is exposed to the toxic air pollutant concentration continuously for 70 years. We recognize that this is not realistic, but it is a reasonable conservative assumption of the type that is used routinely in screening level risk evaluations. If the potential risk identified through this process is higher than is acceptable, a more careful evaluation using more realistic inputs can be carried out. However, in the interest of saving the sponsoring organization time and money, and in the interest of erring on the side of public health, such assumptions are used.

The "Exposure Levels and Health Effects" section continues

> "There are also considerable uncertainties associated with the existing estimates of toxicity of the various MSATs, because of factors such as low-dose extrapolation and translation of occupational exposure data to the general population. Because of these shortcomings, any calculated difference in health impacts between alternatives is likely to be much smaller than the uncertainties associated with calculating the impacts."

It is true that there is uncertainty in the toxicity estimates associated with air pollutants. This does not mean however, that these benchmarks are without accuracy and thus not useful in risk predictions. Because the toxicity assessment process is designed to be conservative and protective of sensitive sub-populations, the resulting risk-based safe limits have been used internationally to protect human health. The uncertainty in hazard assessment is sound and reflects the best current peer reviewed science.

If we did not use toxicity estimates, risk assessments would not be possible. Extrapolating from higher doses to lower doses is often required to develop toxicity estimates because it would be inappropriate (for many reasons) to intentionally expose members of the general population to air toxics simply to obtain a more refined toxicity number. Instead, we might employ epidemiological studies carried out on people who are exposed during the course of their work, and then extrapolate from those levels to lower levels typical of the general public. In many cases we do not have human exposure data at all, and must resort to exposing animals to evaluate the effect of chemicals. This also involves extrapolation, but it is done systematically and deliberately by toxicologists trained in the science. This process is described in the Air Toxics Reference Library.

> There are shortcomings, but screening level risk assessments are a useful way to compare alternatives and to identify potential risks that warrant further investigation with more sophisticated risk assessment techniques. Such evaluations are our opportunity to identify potential toxic exposures that could be mitigated or avoided, and to identify those exposures that are of no concern. While uncertainties do exist in risk assessment, they also exist in all other modeled outputs, such as travel demand and land use.

7. On Page 79, the third paragraph notes that, "Some recent studies have reported that proximity to roadways is related to adverse health outcomes – particularly respiratory problems." The section goes on to say,

> "The FHWA cannot evaluate the validity of these studies, but more importantly, they do not provide information that would be useful to alleviate the uncertainties listed above and enable us to perform a more comprehensive evaluation of the health impacts specific to this project."

It should be noted that there are hundreds of studies that have been published just since 2000 associating proximity to roadways with a number of adverse health effects including respiratory, birth and developmental effects, cardiovascular, premature mortality, and cancer. Baldauf et al. provided a summary of a number of these studies at the Transportation Research Board's Air Quality and Land Use Planning Conference in 2007 (*Traffic Emission Impacts on Air Quality Near Large Roadways* Proceedings the Transportation Research Board Planning and Air Quality Conference, July 9-11, 2007). While these studies may not implicate specific pollutants as resulting in the adverse effects, they do implicate proximity as a key factor.

8. On Page 80, the fourth paragraph states:

> "The additional travel lanes and proposed realignment contemplated as part of the project Build Alternatives will have the effect of moving some traffic closer to nearby homes and businesses; therefore, under each alternative there may be localized areas where ambient concentrations of MSATs could be higher under certain Build Alternatives than the No-Build Alternative. ... However, as discussed above, the magnitude and the duration of these potential increases compared to the No-build Alternative cannot be accurately quantified due to the inherent deficiencies of current models. ... However, on a regional basis, EPA's vehicle and fuel regulations, coupled with fleet turnover, will over time cause substantial reductions that, in almost all cases, will cause region-wide MSAT levels to be substantially lower than present levels."

It is useful to know that some build alternatives will move traffic closer to homes and businesses. This should be quantified. How many homes/schools/people will be brought into "close" proximity of traffic (e.g. within 500 meters)? Who is upwind/downwind? What factors such as barriers and vegetation might affect exposure?

Levels of air toxics can vary significantly over short distances, and as noted above, the tools and techniques do exist to evaluate the impacts of the alternatives at the project level. These analyses are important to understand the potential impacts associated with the alternatives particularly

because, as noted above, studies are associating proximity to roadways with adverse health impacts.

While MSAT emissions are expected to be lower than present levels as a result of EPA regulations, this information does not inform the decision among options since the EIS's purpose is to compare the impacts of those options at some point in the future, not to evaluate the impact of the EPA regulations between today and some point in the future.

9. EPA also notes that the design, concept and scope of the selected alternative must match the project scope of the 2030 Long Range Transportation Plan before issuance of the Record of Decision.